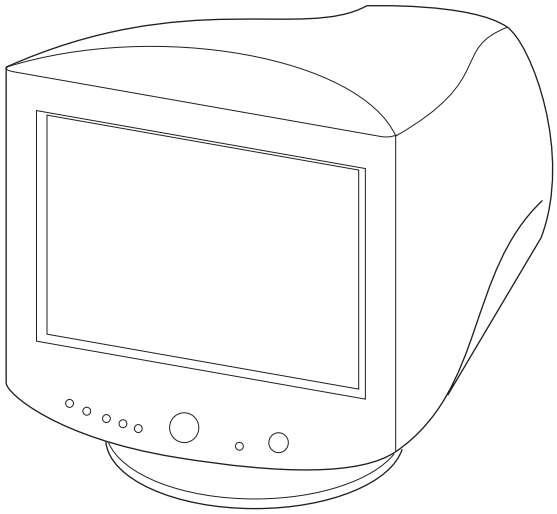
# P1130

# SERVICE MANUAL

*US Model*
*Canadian Model*
*Chassis No. SCC-L33H-A*



## CR1 CHASSIS

### SPECIFICATIONS

**Screen dimensions**

| | |
|---|---|
| Preset Image Size | |
| 4:3 | Diagonal 19.09 inches (485 mm) |
| | Horizontal 15.28 inches (388 mm) |
| | Vertical 11.46 inches (291 mm) |
| 5:4 | Diagonal 18.35 inches (466 mm) |
| | Horizontal 14.33 inches (364 mm) |
| | Vertical 11.46 inches (291 mm) |
| Viewable Image Size (VIS) | Diagonal 19.86 inches (504 mm) |
| | Horizontal 15.90 inches (404 mm) |
| | Vertical 11.90 inches (302 mm) |
| Aperture Grille Pitch | 0.24 mm |
| Deflection angle | 90° |
| Faceplate coating | AR Coating |

**Resolution**

| | |
|---|---|
| Horizontal scan range | 30 kHz to 130 kHz (automatic) |
| Vertical scan range | 48 Hz to 170 Hz (automatic) |
| Optimal preset resolution | 1280 x 1024 at 85 Hz |
| Highest preset resolution | 1600 x 1200 at 85 Hz |
| Highest addressable resolution* | 2048 x 1536 at 80 Hz |

* Addressable means the monitor will sync up to this mode. However, Dell does not guarantee the image will be sized and centered correctly.

Dell guarantees image size and centering for all preset modes listed in the following table.

**Electrical**

| | |
|---|---|
| Video input signals | analog, 0.7 Vpp, positive at 75 ohm |
| Synchronization input signals | separate horizontal and vertical; and composite TTL level, positive or negative Sync on Green at 0.3 Vp-p |
| AC input voltage / frequency / current | 120 to 240 VAC / 50 or 60 Hz ± 3 Hz / 1.6 A (RMS) at 120 VAC and 0.9 A (RMS) at 220 VAC |
| Inrush current at 120 V | 50 A |
| Inrush current at 240 V | 80 A |

**Physical Characteristics**

| | |
|---|---|
| Connector type | 15-pin D-subminiature |
| Signal cable type | Attached to monitor |
| Dimensions: | |
| Height | 502 mm (19.8 inches) |
| Width | 497 mm (19.6 inches) |
| Depth | 485 mm (19.1 inches) |
| Weight (monitor only) | 30.5 kg (67.4 lb) |
| Weight (with packaging) | 35.5 kg (78.4 lb) |

**Environmental**

| | |
|---|---|
| Temperature: | |
| Operating | 32° to 104°F (0° to 40°C) |
| Nonoperating | -4° to 140°F (-20° to 60°C) |
| Humidity: | |
| Operating | 10% to 80% (noncondensing) |
| Nonoperating | 5% to 90% (noncondensing) |
| Altitude: | |
| Operating | 3,048 m (10,000 ft) |
| Nonoperating | 10,675 m (35,000 ft) |
| Thermal dissipation | 494 BTU/hour (maximum) |
| | 426 BTU/hour (typical) |

## TORINITRON® COLOR GRAPHIC DISPLAY

DELL®

# POWER SAVING FUNCTION

If you have VESA's DPMS compliance display card or software installed in your PC, the monitor can automatically reduce its power consumption when not in use. If input from keyboard, mouse or other input devices is detected, the monitor will automatically "wake up". The following table shows the power consumption and signaling of this automatic power saving feature:

Power Management Definition

| VESA's Mode | Video | H-sync | V-sync | Power Used | LED color |
|---|---|---|---|---|---|
| ON | Active | Yes | Yes | minimum<br>95 W<br>maximum<br>135 W<br>typical<br>120 W | Green |
| Active-OFF | Blanked | No | No | < 3 W | Amber |
| OFF* | N/A | N/A | N/A | 0 W | OFF |

This monitor is ENERGY STAR®-compliant and TCO'95 power management compatible.

* Zero power consumption in OFF mode can only be achieved by disconnecting the power cable from the monitor.

# DIAGNOSIS

| Failre | Power LED |
|---|---|
| +B failure | Amber → Off<br>(0.5 sec) (0.5 sec) |
| Horizontal / Vertical Deflection failure, Thermal protector | Amber → Off<br>(1.5 sec) (0.5 sec) |
| ABL protector | Amber → Off<br>(0.5 sec) (1.5 sec) |
| HV failure | Amber → Off → Amber → Off<br>(0.25 sec) (0.25 sec) (0.25 sec) (1.25 sec) |
| Aging / Self Test | Amber → Off → Green → Off<br>(0.5 sec) (0.5 sec) (0.5 sec) (0.5 sec) |
| Out of scan range | Green (OSD indication) |

Self Test (OSD Color Bar) : During Power Save, push up UP button for longer than 2 second.

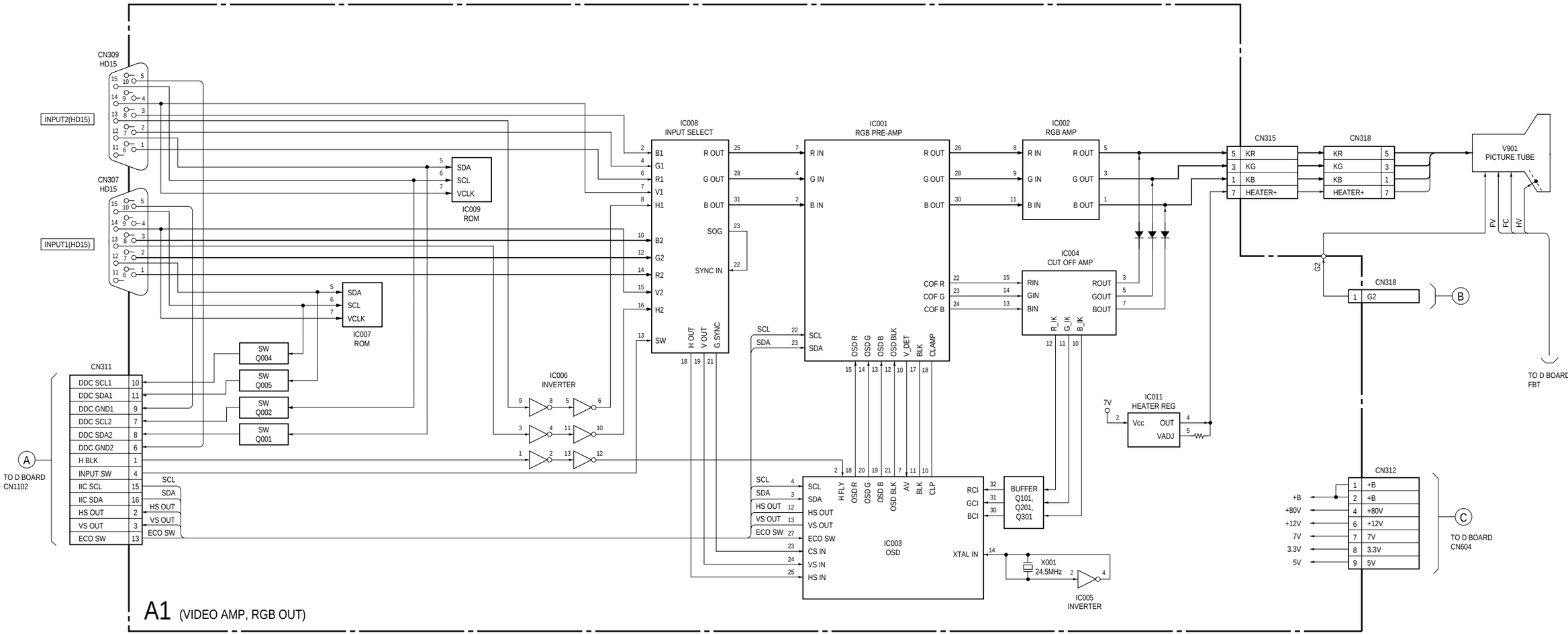
# TIMING SPECIFICATION

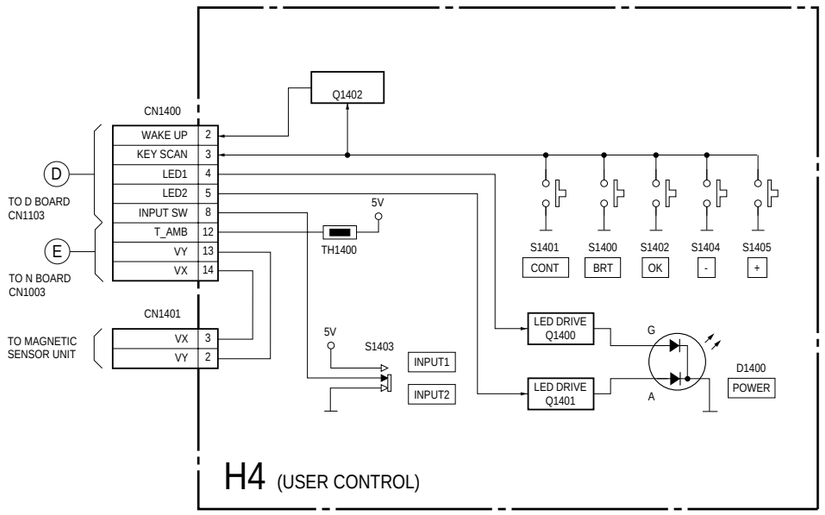
| MODE AT PRODUCTION | MODE 1 | MODE 2 | MODE 3 |
|---|---|---|---|
| RESOLUTION | 640 X 480 | 1600 X 1200 | 1280 X 1024 |
| CLOCK | 25.175 MHz | 229.500 MHz | 157.500 MHz |
| — HORIZONTAL — | | | |
| H-FREQ | 31.469 kHz | 106.250 kHz | 91.146 kHz |
| | usec | usec | usec |
| H. TOTAL | 31.778 | 9.412 | 10.971 |
| H. BLK | 6.356 | 2.440 | 2.844 |
| H. FP | 0.636 | 0.279 | 0.406 |
| H. SYNC | 3.813 | 0.837 | 1.016 |
| H. BP | 1.907 | 1.325 | 1.422 |
| H. ACTIV | 25.422 | 6.972 | 8.127 |
| — VERTICAL — | | | |
| V. FREQ (Hz) | 59.940 Hz | 85.000 Hz | 85.024 Hz |
| | lines | lines | lines |
| V. TOTAL | 525 | 1250 | 1072 |
| V. BLK | 45 | 50 | 48 |
| V. FP | 10 | 1 | 1 |
| V. SYNC | 2 | 3 | 3 |
| V. BP | 33 | 46 | 44 |
| V. ACTIV | 480 | 1200 | 1024 |
| — SYNC — | | | |
| INT(G) | NO | NO | NO |
| EXT (H/V) /POLARITY | YES N/N | YES P/P | YES P/P |
| EXT (CS) /POLARITY | NO | NO | NO |
| INT/NON INT | NON INT | NON INT | NON INT |

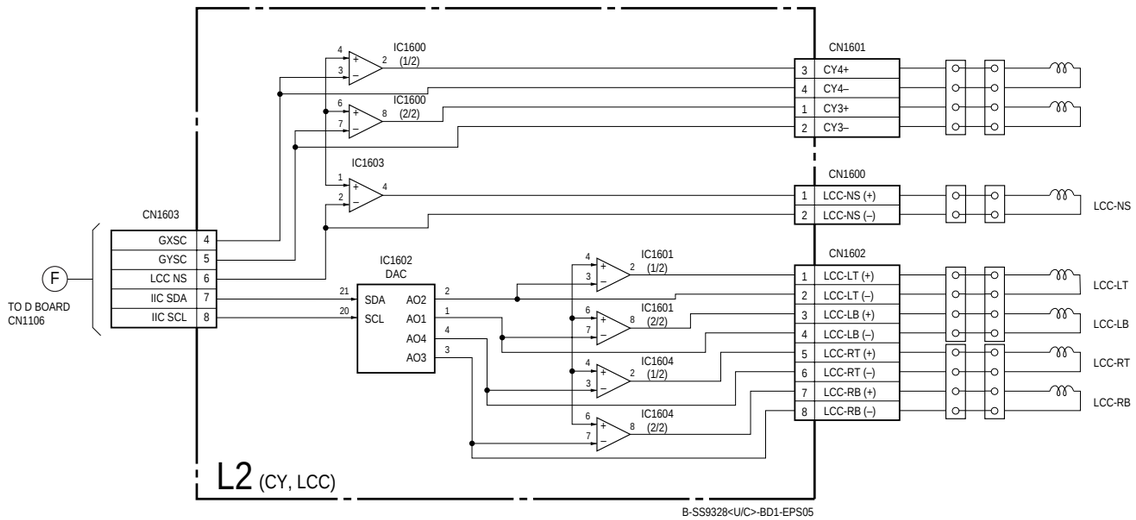
2001.3.21 VER.

# SECTION 4
# DIAGRAMS

## 4-1. BLOCK DIAGRAMS




B-SS9328<U/C>-BD1-EPS05

## DA (DPU)

CN1101

| | | |
|---|---|---|
| H.DF | 1 | 1 HDF1 |
| REFDC | 33 | 2 DCC2 |
| XDC | 37 | 3 XDC |
| HD OUT | 34 | 21 HDOUT |
| HFBP | 36 | 23 FBP-IN |
| H BLK | 15 | 35 H BLK |
| VS OUT | 11 | 36 V-IN |
| HS OUT | 13 | 38 H-IN |
| PLL LOCK | 7 | 39 LOCK-DET |
| IIC SDA | 20 | 40 SDA |
| IIC SCL | 19 | 41 SCL |
| LCC_NS | 22 | 43 LCC_NS |
| HSAW_SW | 24 | 44 HSAW_SW |
| H.LINBAL | 16 | 45 PWM2 |
| GYSC | 21 | 48 GYSC |
| GXSC | 23 | 49 GXSC |
| V.DF | 2 | 50 VDF |
| D.TILT | 38 | 51 VKEY |
| YSC | 39 | 52 YSC |
| XSC | 40 | 53 XSC |
| HSHAPE | 32 | 54 HSHAPE |
| YDC | 35 | 63 YDC |
| POC | 5 | 27 POC-OUT |
| DCC2 | 12 | 26 POC-IN |
| VSAWN | 10 | 64 DCC |
| | | 58 ASW1 |
| | | 59 ASW2 |

IC1101 DPU

IC1102 AMP

G — TO D BOARD CN502

I — TO D BOARD CN1104

CN1001

| | | |
|---|---|---|
| LB DET | 32 | 22 P42/AN10 |
| IK SIGMA | 34 | 21 P41/AN09 |
| DDC SDA1 | 7 | 51 P86/SDA1 |
| DDC SCL1 | 9 | 52 P87/SCL1 |
| DDC GND1 | 11 | 71 P21/A1/A17 |
| DDC SDA2 | 13 | 49 P84/SDA2 |
| DDC SCL2 | 15 | 50 P85/SCL2 |
| DDC GND2 | 17 | 70 P20/A0/A16 |
| INPUT SW | 29 | 80 P27/A7/A23 |
| IIC SDA | 1 | 35 P80/SDA0/SI0 |
| IIC SCL | 3 | 36 P81/SCL0/SO0 |
| TXD | 2 | 37 P82/TXD0 |
| RXD | 4 | 38 P83/RXD0 |
| KEY SCAN | 35 | 23 P42/AN11 |
| LED1 | 33 | 79 P26/A6/A22 |
| LED2 | 31 | 78 P25/A5/A21 |
| PLL LOCK | 39 | 34 P76/SCK0/INT3 |
| POC | 40 | 31 P73/TB01N0/IN5 |
| HV DET | 6 | 19 P57/AN07 |
| ABL DET | 8 | 20 P40/AN08 |
| G2 | 10 | 28 P70/TA1OUT |
| S6 | 12 | 7 P36/TA7OUT |
| S5 | 14 | 6 P35/TA61N |
| S4 | 16 | 5 P34 |
| S3 | 18 | 4 P33/MAIT |
| S2 | 24 | 3 P32/HWR |
| S1 | 26 | 2 P31/WR |
| S0 | 28 | 1 P30/RD |
| PWR SW | 23 | 58 P04/AD4 |
| DGC SW | 25 | 60 P06/AD6 |
| V.FBP | 30 | 10 P61/CTS0 |
| WAKE UP | 36 | 13 P51/AN01 |
| ECO SW | 5 | 9 P60/INT0 |

IC1001 CPU

P54/AN04 16 — CN1003 4 T_AMB
P55/AN05 17 — 3 VY
P56/AN06 18 — 2 VX

E — TO H4 BOARD CN1400

IC1003 ROM

P12/A10/AD10 64 — 7 WC
P11/A9/AD9 63 — 6 SCL
P10/A8/AD8 62 — 5 SDA

5V — I — IC1002 RESET — O — RESET 46 — G

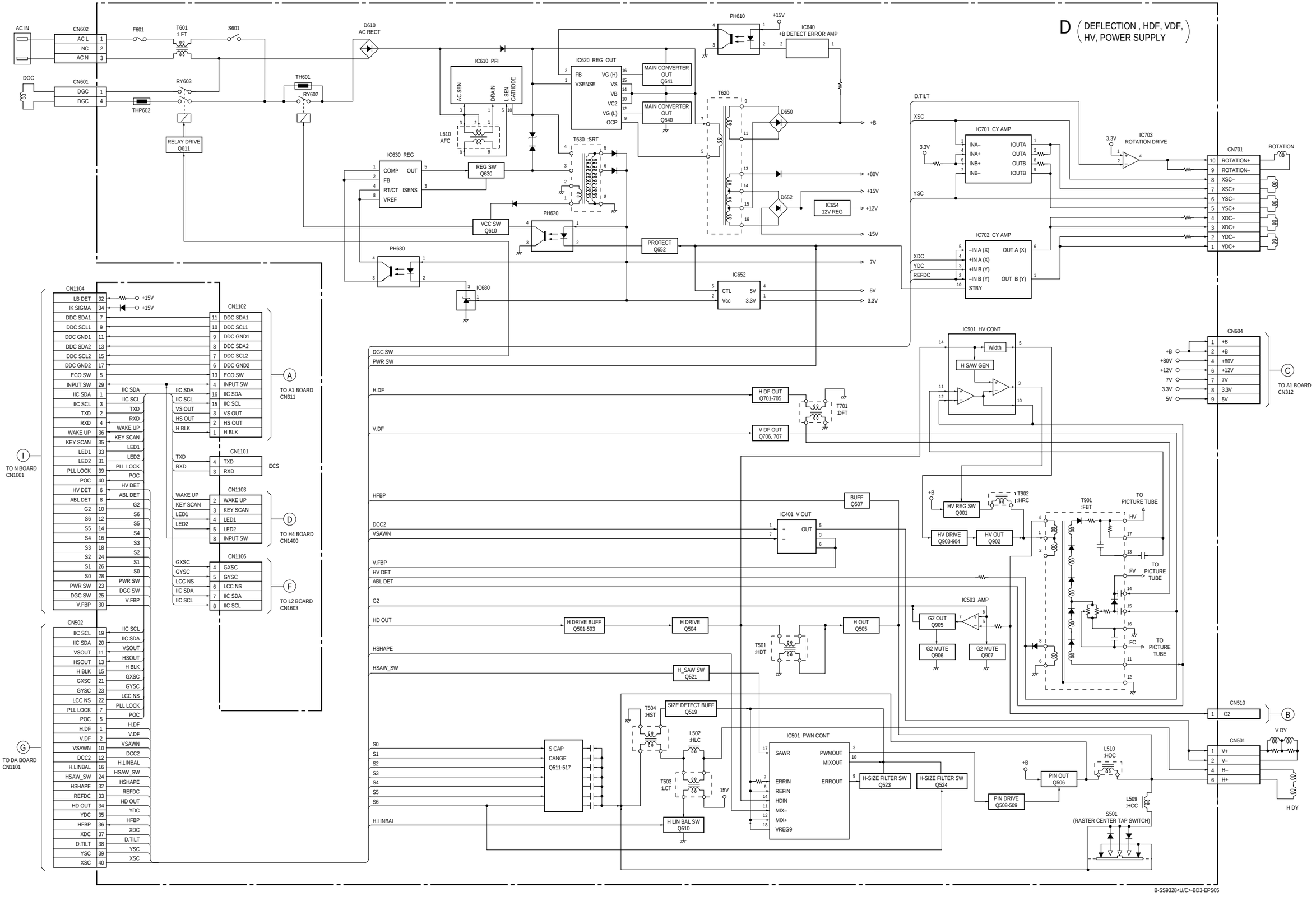
X2 41 — X1001 16.9344MHz — X1 43

INVERTER Q1001

## N (μ-COM)

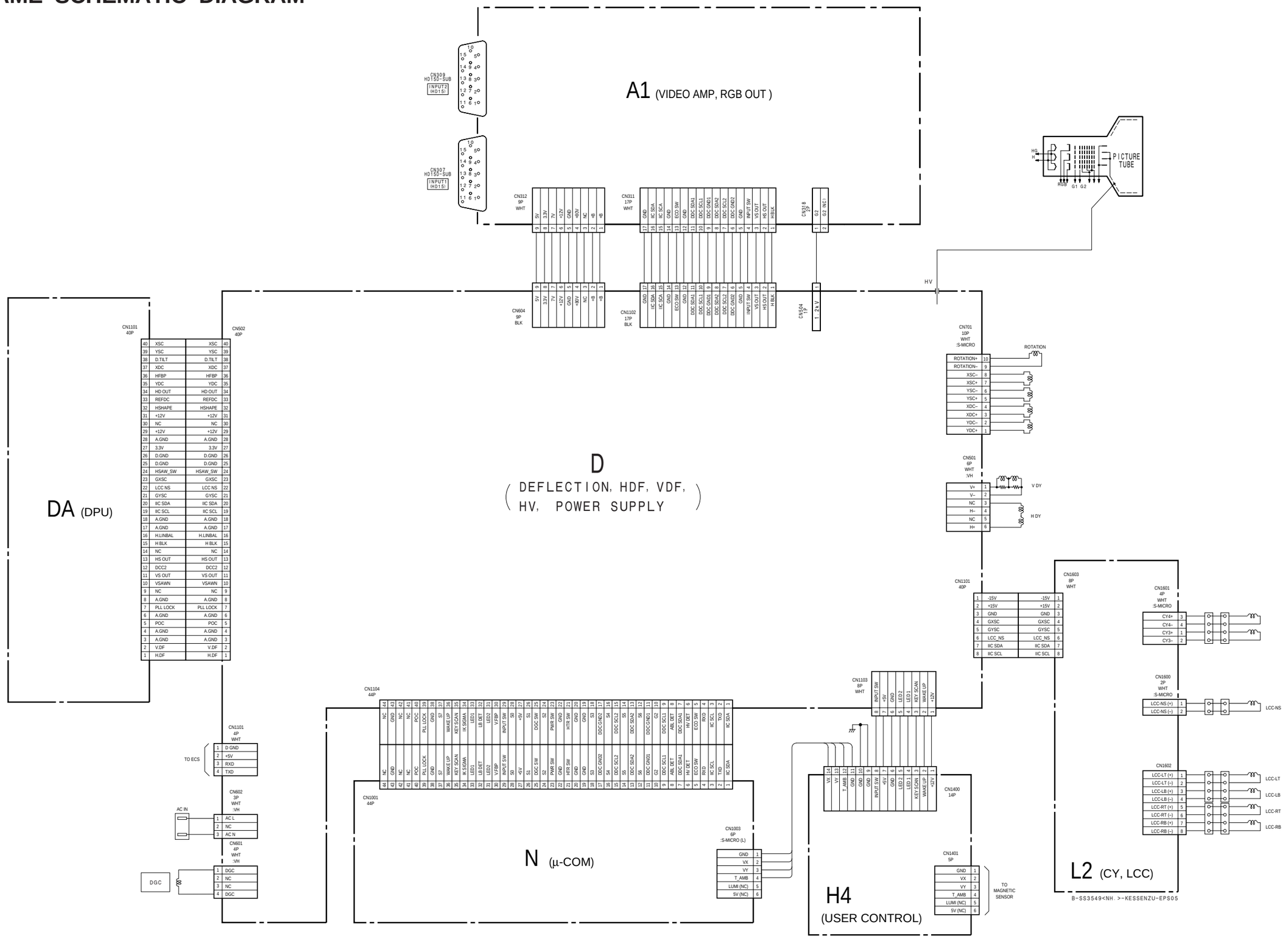
B-SS9328<U/C>-BD2-EPS05

# D (DEFLECTION , HDF, VDF, HV, POWER SUPPLY)



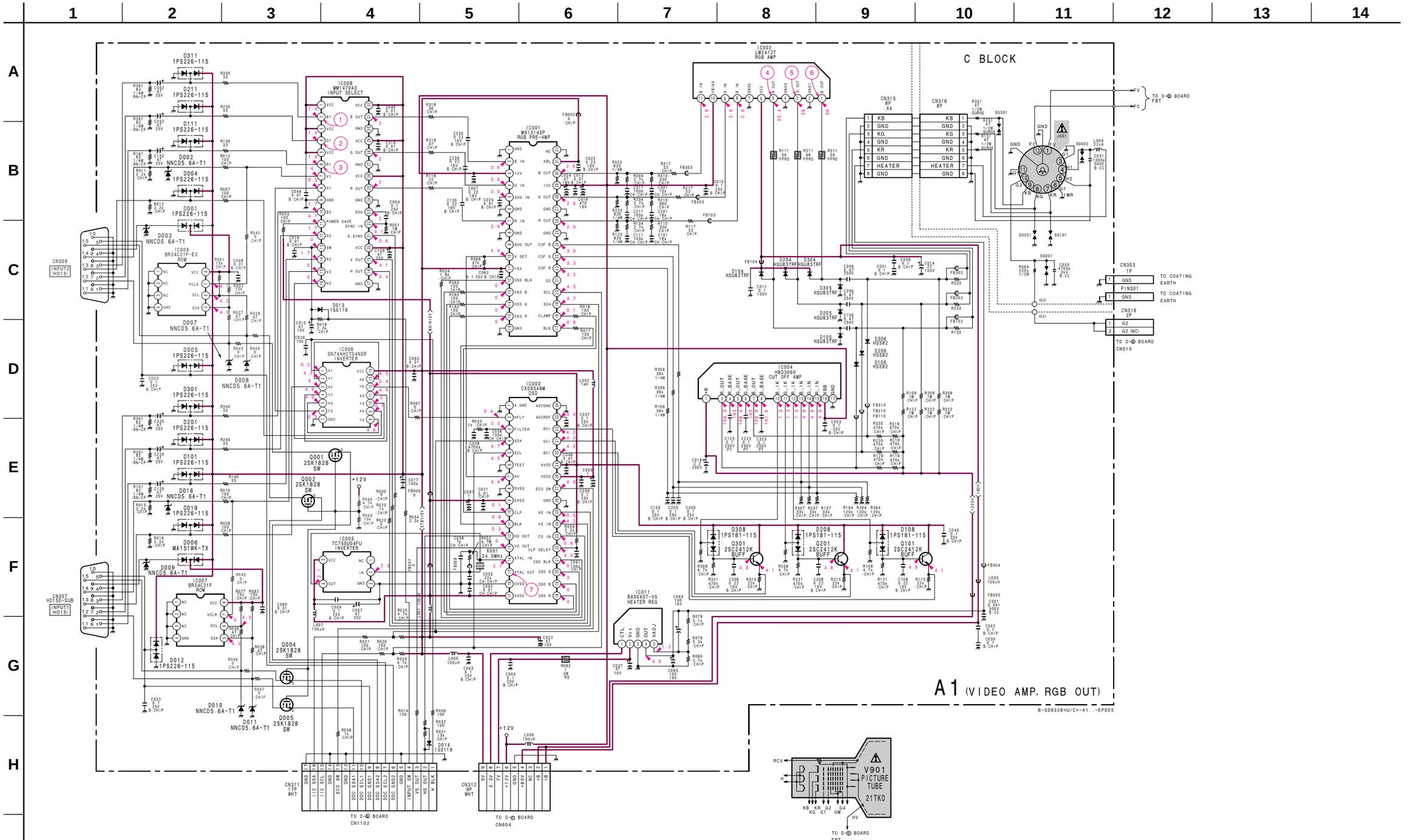

B-SS9328<U/C>-BD3-EPS05

# 4-2. FRAME SCHEMATIC DIAGRAM




B-SS3549<NH.>-KESSENZU-EPS05

## (1) Schematic Diagram of A1 Board




- **A1 BOARD WAVEFORMS**

| ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|---|---|---|---|---|---|---|
| 0.74 Vp-p (H) | 1.12 Vp-p (H) | 0.73 Vp-p (H) | 56.0 Vp-p (H) | 54.5 Vp-p (H) | 54.5 Vp-p (H) | 1.24 Vp-p (24.5 MHz) |

## (2) Schematic Diagrams of D (ⓐ, ⓑ, ⓒ) Board

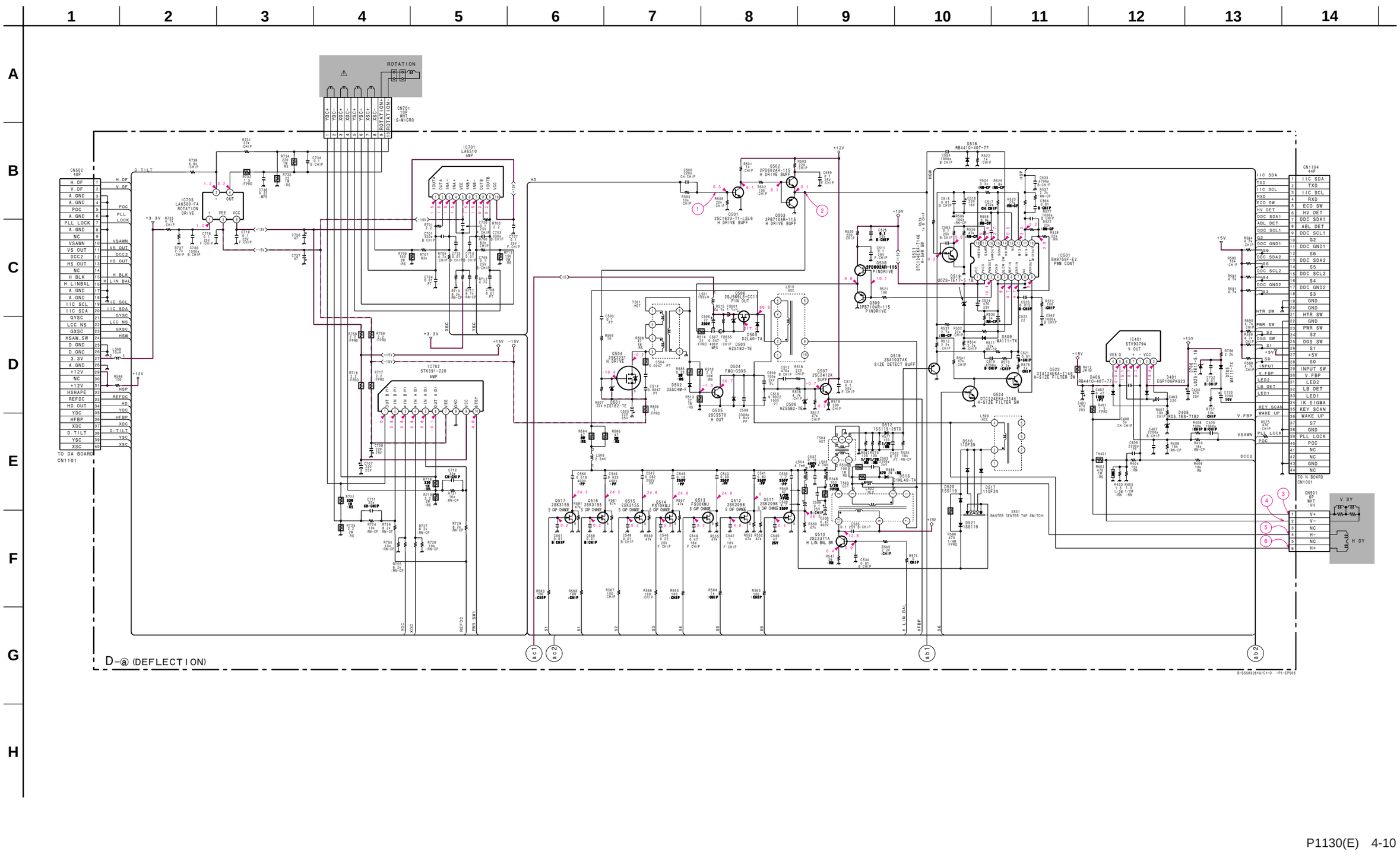
- Divided circuit diagram

  One sheet of D board circuit diagram is divided into three sheets, each having the code D-ⓐ to D-ⓒ. For example, the destination ab1 on the code D-ⓐ sheet is connected to ab1 on the D-ⓑ sheet.

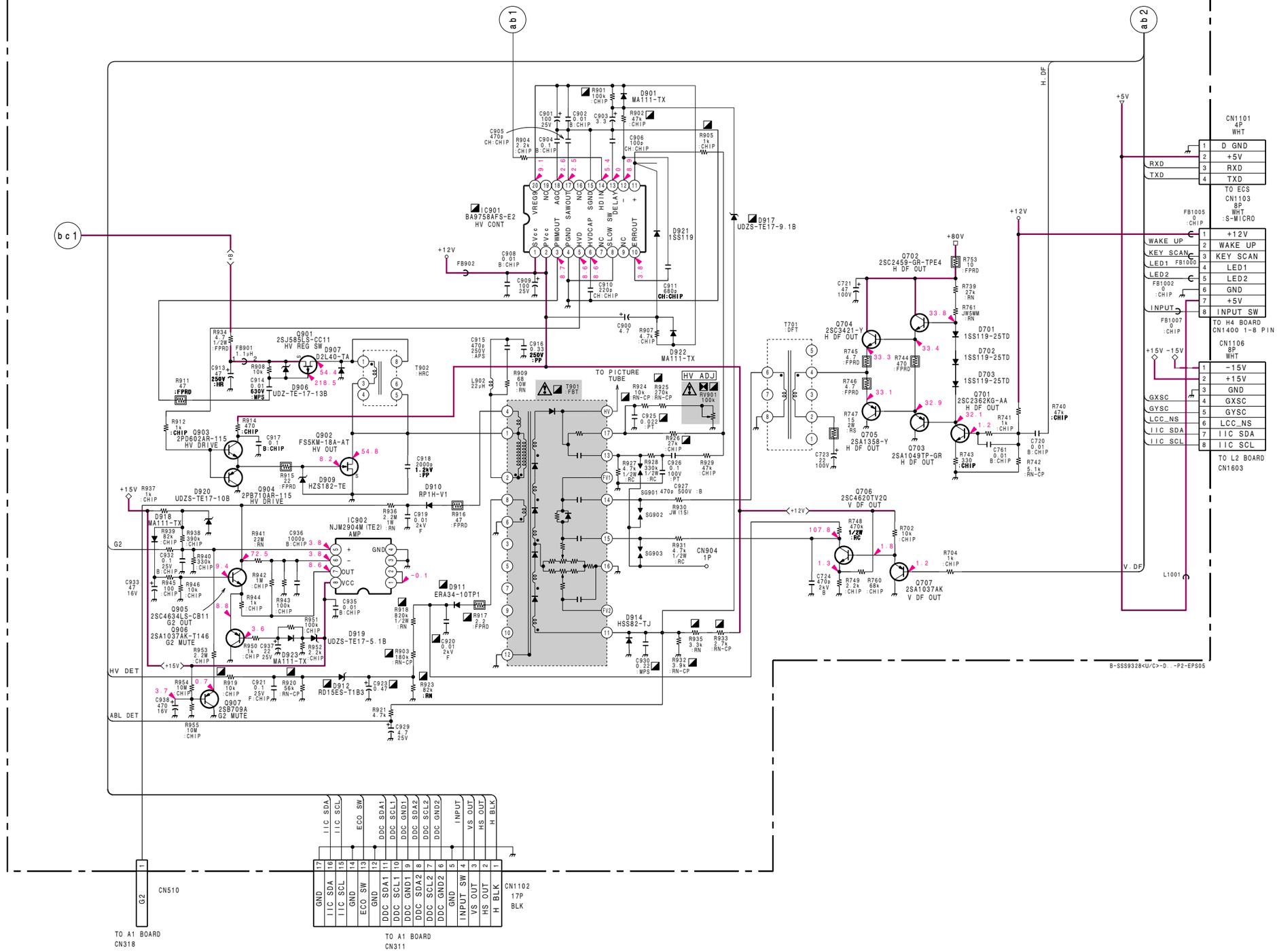
  a b 1
  - Ref. No.
  - Circuit diagram division code

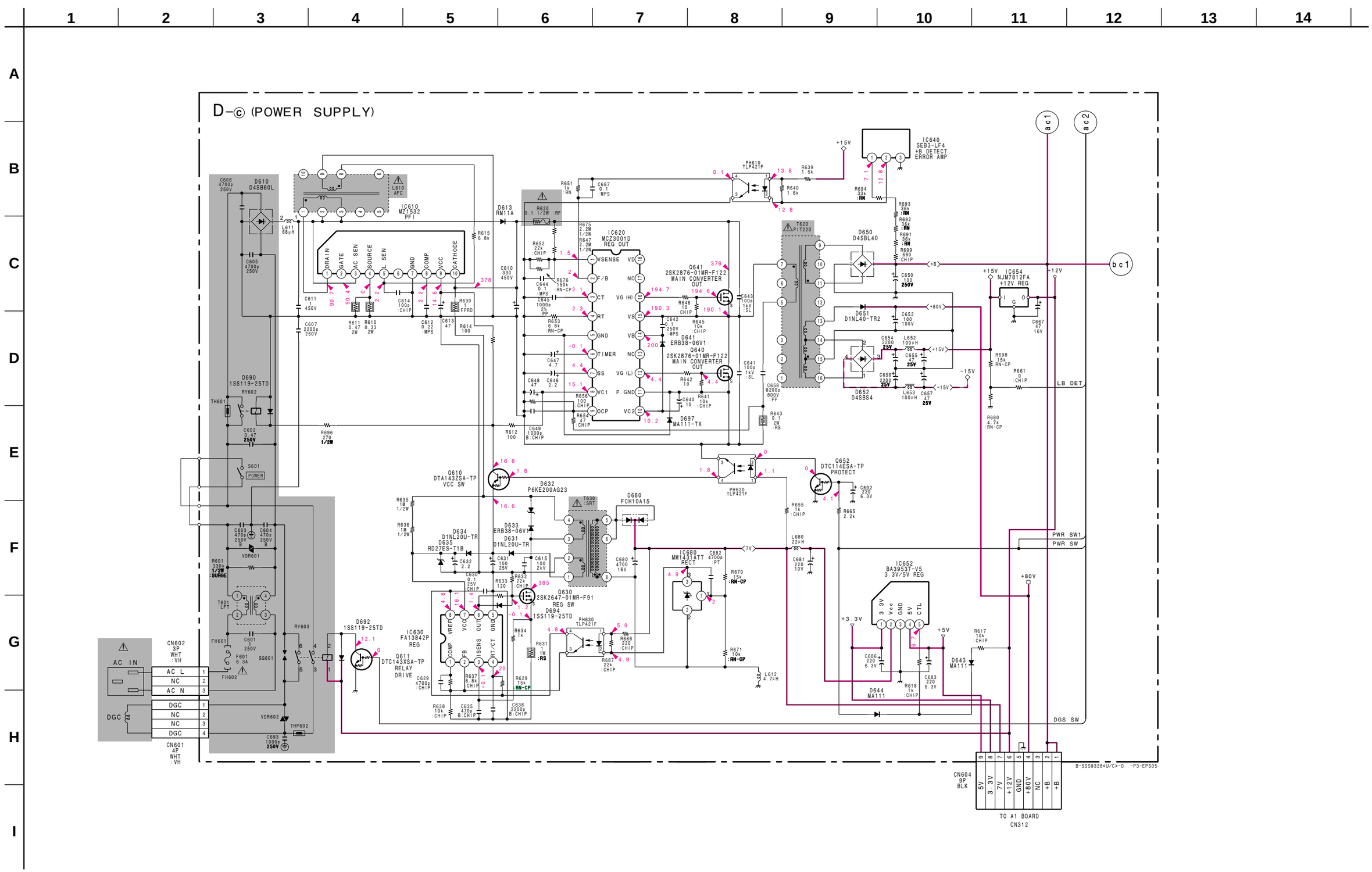
### • D-ⓐ BOARD WAVEFORMS

| ① | ② | ③ | ④ | ⑤ | ⑥ |
|---|---|---|---|---|---|
| 0.71 Vp-p (H) | 11.3 Vp-p (H) | 59.5 Vp-p (V) | 1.7 Vp-p (V) | 180 Vp-p (H) | 640 Vp-p (H) |

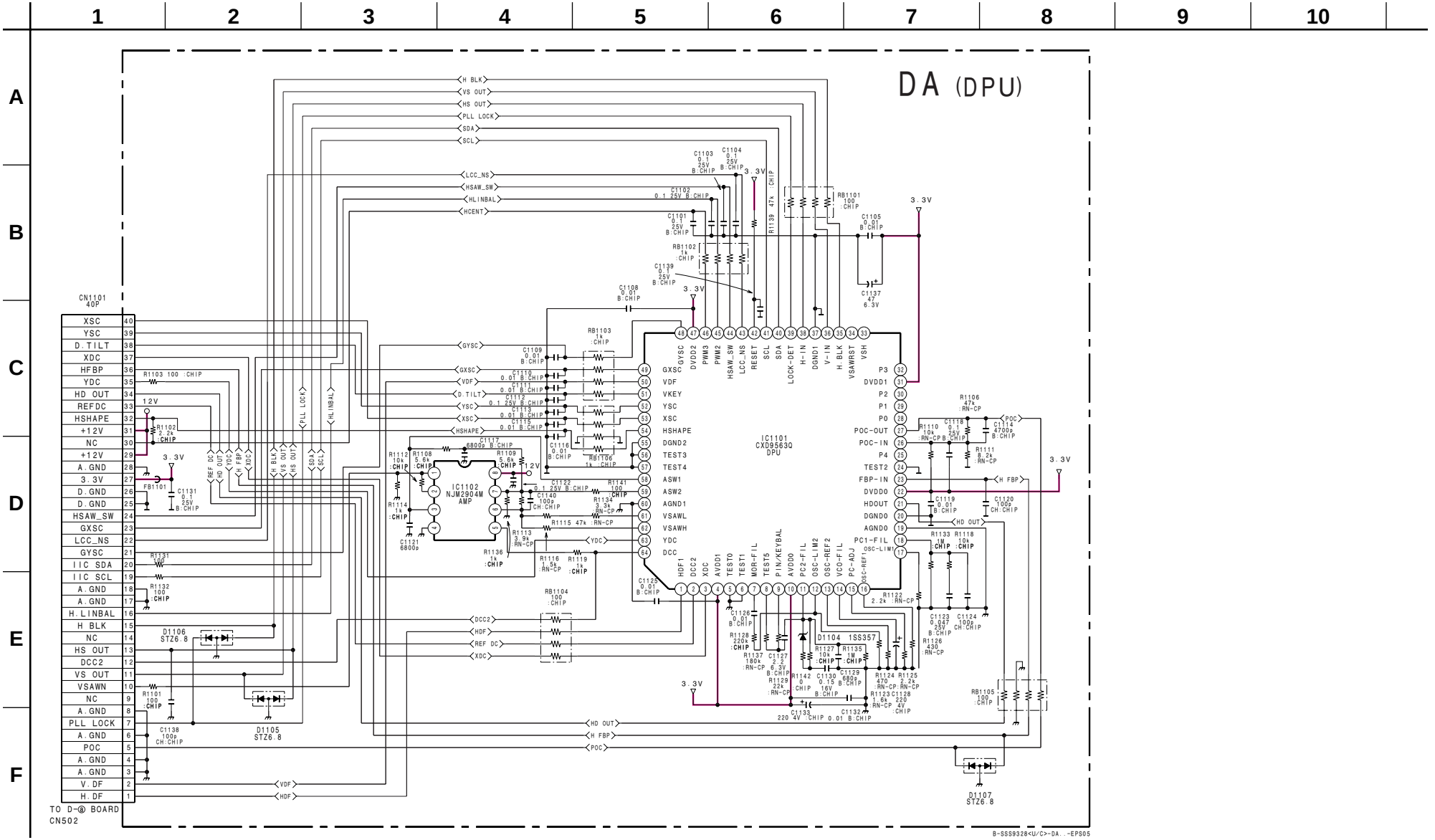


D–ⓑ (HV, HDF, VDF)

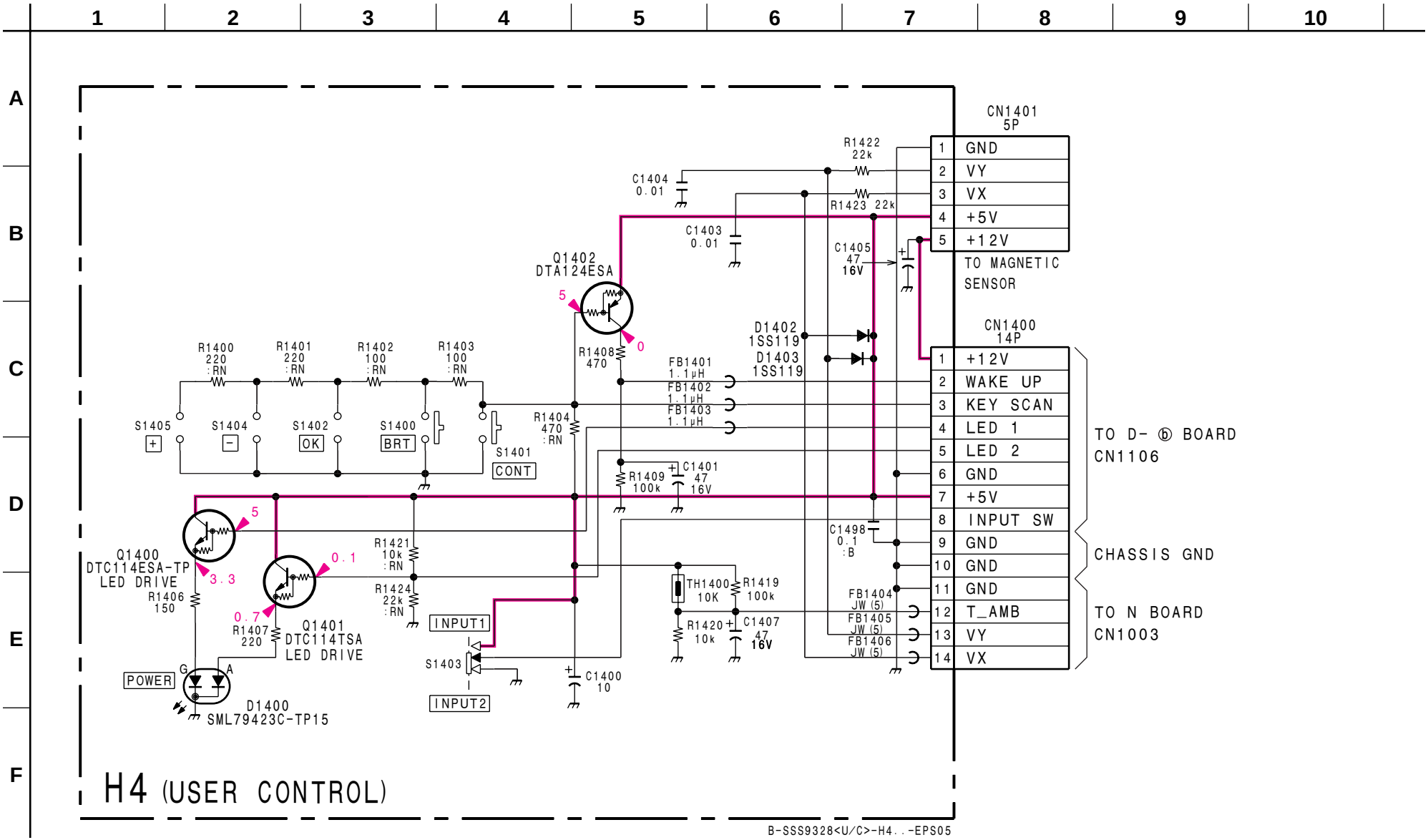

ab1
ab2
bc1
G2
HV DET
ABL DET
+15V
+12V
+5V
+80V
H.DF
V.DF
L1001
B-SSS9328<U/C>-D..-P2-EPS05
C901 BA9758AFS-E2 HV CONT
Q901 2SJ598LS-CC11 HV REG SW
Q902 FSSKM-18A-AT HV OUT
Q903 2PD602AR-115 HV DRIVE
Q904 2PB710AR-115 HV DRIVE
Q905 2SC4634LS-CB11 G2 OUT
Q906 2SA1037AK-T146 G2 MUTE
Q907 2SB709A G2 MUTE
IC902 NJM2904M (TE2) AMP
D901 MA111-TX
D902 D2L40-TA
D906 UDZ-TE-17-13B
D909 HZS182-TE
D911 ERA34-10TP1
D912 RD15ES-T1B3
D914 HSS82-TJ
D917 UDZS-TE17-9.1B
D919 UDZS-TE17-5.1B
D920 UDZS-TE17-10B
D921 1SS119
D922 MA111-TX
T901 FBT
T902 HRC
HV ADJ
TO PICTURE TUBE
Q702 2SC2459-GR-TPE4 H DF OUT
Q704 2SC3421-Y H DF OUT
Q705 2SA1358-Y H DF OUT
Q703 2SA1049TP-GR H DF OUT
Q706 2SC4620TV2Q V DF OUT
Q707 2SA1037AK V DF OUT
D701 1SS119-25TD
D702 1SS119-25TD
D703 1SS119-25TD
CN1101 4P WHT
D GND
+5V
RXD
TXD
TO ECS
CN1103 8P WHT :S-MICRO
+12V
WAKE UP
KEY SCAN
LED1
LED2
GND
+5V
INPUT SW
TO H4 BOARD CN1400 1-8 PIN
CN1106 8P WHT
-15V
+15V
GND
GXSC
GYSC
LCC_NS
IIC SDA
IIC SCL
TO L2 BOARD CN1603
CN510
TO A1 BOARD CN318
CN1102 17P BLK
TO A1 BOARD CN311
CN904 1P


D-ⓒ (POWER SUPPLY)
IC610 MZ1532 PFI
IC620 MCZ3001D REG OUT
IC630 FA13842P REG
IC640 SE83-LF4 +B DETECT ERROR AMP
IC652 BA3953T-V5 3.3V/5V REG
IC654 NJM7812FA +12V REG
IC680 MM1431ATT RECT
D610 D4SB60L
D650 D4SBL40
D651 D1NL40-TR2
D652 D4SBS4
D680 FCH10A15
D690 1SS119-25TD
D692 1SS119-25TD
D694 1SS119-25TD
D697 MA111-TX
D632 P6KE200AG23
D633 ERB38-06V1
D634 D1NL20U-TR
D635 RD27ES-T1B
D640 2SK2876-01MR-F122 MAIN CONVERTER OUT
D641 2SK2876-01MR-F122 MAIN CONVERTER OUT
D641 ERB38-06V1
D643 MA111
D644 MA111
Q610 DTA143ZSA-TP VCC SW
Q611 DTC143XSA-TP RELAY DRIVE
Q630 2SK2647-01MR-F91 REG SW
Q652 DTC114ESA-TP PROTECT
T620 PIT220
T630 SRT
L610 AFC
L611 68μH
L612 4.7μH
L652 100μH
L653 100μH
L680 22μH
PH610 TLP421F
PH620 TLP421F
PH630 TLP421F
TH601
RY602
RY603
S601 POWER
VDR601
VDR602
FH601 F601 6.3A
FH602
SG601
THP602
AC IN
AC L
NC
AC N
DGC
CN602 3P WHT :VH
CN601 4P WHT :VH
CN604 9P BLK
5V
3.3V
7V
+12V
GND
+80V
NC
+B
+B
TO A1 BOARD CN312
B-SSS9328<U/C>-D...-P3-EPS05
+15V
+12V
+80V
+8
+7V
+5V
+3.3V
-15V
LB DET
PWR SW1
PWR SW
DGS SW
ac1
ac2
bc1

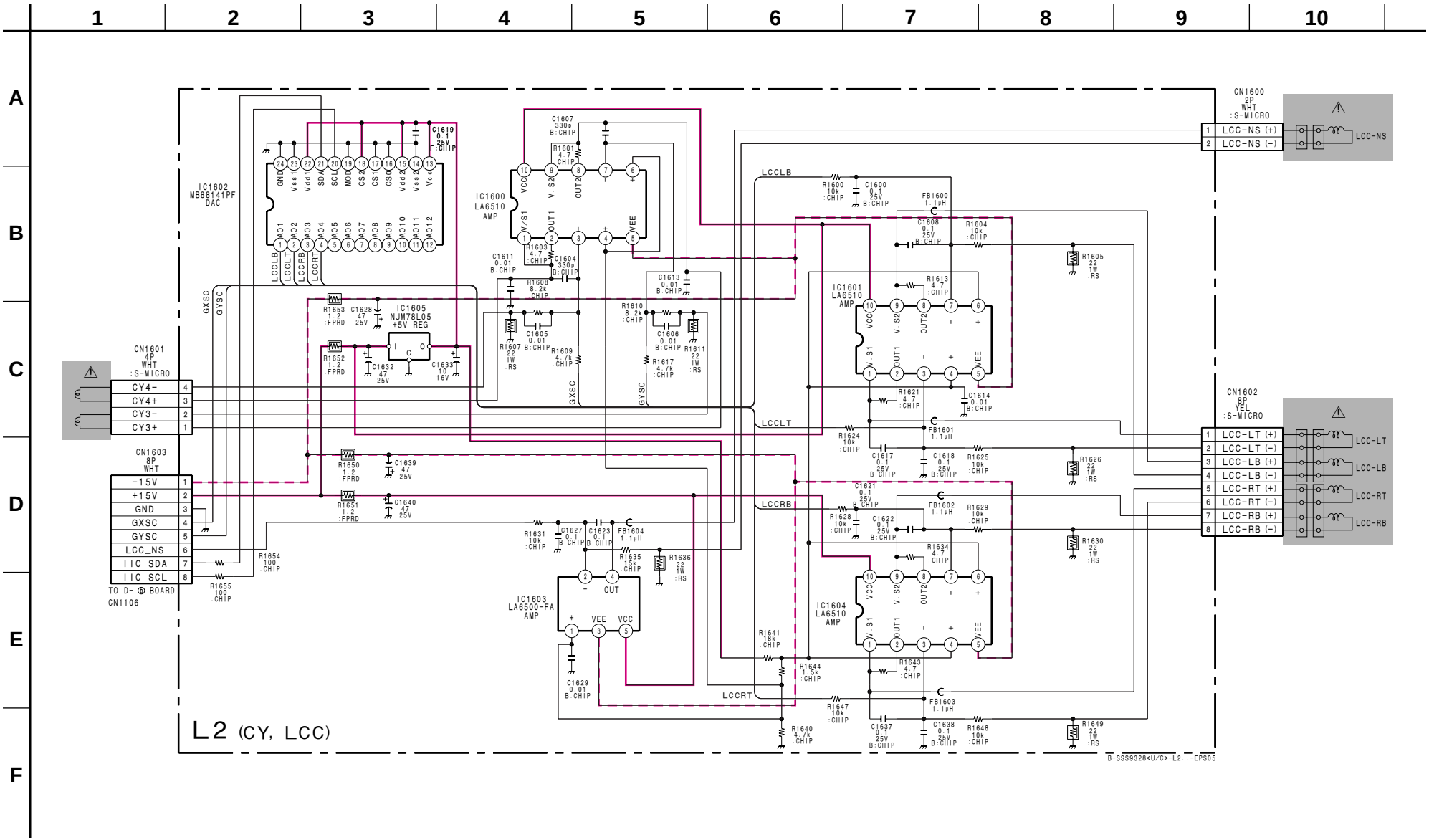
## (3) Schematic Diagram of DA Board



## (4) Schematic Diagram of H4 Board



## (5) Schematic Diagram of L2 Board



**(6) Schematic Diagram of N Board**